

REMARKS

Applicants thank the Examiner for the thorough consideration given the present application.

Claims 1-11 are now present in this application. Claim 1 is independent.

Claims 1, 2 and 11 have been amended. Reconsideration of this application, as amended, is respectfully requested.

Double Patenting

The Examiner provisionally rejected claims 1-11 under nonstatutory obvious-type double patenting over claims 1-13 of co-pending Application No. 10/593,480. Applicants will address this rejection upon the indication of allowable subject matter, to assess whether the rejection is applicable at that time.

Rejections under 35 U.S.C. §103

Claims 1-6 and 9-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over US 6,328,886 (Miyashita et al.) or US 2002/0139748 (Cote et al.) or US Re 39,294 (Mahendran). Further, claims 7 and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Miyashita et al., Cote et al. or Mahendran and either Hayano et al. or Brun et al. These rejections are respectfully traversed.

Complete discussions of the Examiner's rejections are set forth in the Office Action, and are not being repeated here.

While not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, Applicants respectfully submit that independent claim 1 has been amended to recite a combination of elements in a hollow fiber membrane module including two module headers, each of the module headers having a filtrate water collecting portion for collecting filtrate water filtered through hollow fiber membranes and a filtrate water outlet, an air diffusion unit between the two module headers, the air diffusion unit comprising support tubes and air diffusion tubes having air diffusion holes and a bundle of hollow fiber membranes having both opposite ends fixed to the insides of the module headers by

an adhesive so as to form a water collecting space within the module headers, the ends of the hollow portions of the hollow fiber membranes being opened and disposed in parallel to a filtrate water discharge surface. Each of the support tubes has opposite ends connected to the two module headers respectively thereby keeping the two module headers spaced apart by a predetermined distance, and at least one of the support tubes has a plurality of air diffusion holes. Each of the air diffusion tubes is connected to the support tubes and disposed in the bundle of hollow fiber membranes. The support tubes and air diffusion tubes are in fluid communication with one another.

Applicants respectfully submit that this combination of elements as set forth in independent claim 1 is not disclosed or made obvious by the prior art of record, including Miyashita et al., Cote et al., Hayano et al. and Brun et al.

The Examiner states that claims 1-6 and 9-11 are obvious over Miyashita et al., Cote et al., Mahendran or any combination thereof. The explanation of the rejection does not make clear what features are allegedly disclosed and not disclosed by each reference and what reference is relied upon for disclosing the features not disclosed in the other. Without a clear explanation of what each reference is alleged to disclose and how the references are being combined, it is impossible for Applicants to properly respond to the rejection. A clear statement, for each rejection, of which reference is the primary reference, what the primary reference does not disclose, which reference is relied upon for disclosing that which is missing from the primary reference and why one of ordinary skill would combine the teachings of the primary reference and secondary reference is necessary and requested in any future Office Actions.

The Examiner also does not identify, and it is not seen, where either Miyashita et al., Cote et al. or Mahendran discloses air diffusion tubes disposed in the bundle of hollow fiber membranes, as was recited in claim 2 and now recited in claim 1. Miyashita et al. discloses headers and support tubes connected to the headers but not air diffusion tubes connected to the support tubes and within the bundle of hollow fiber membranes. The down tubes 52 and aerators 38 of Cote et al. do not contact the membranes 20, as they move relative to the membranes.

Applicants respectfully submit that the claim recites headers with an air diffuser unit having support tubes extending between the headers, at least one having air diffusion holes and

air diffusion tubes having air diffusion holes. Besides the membranes 103, the only other structure in Miyashita et al. is a single gas diffuser 104 between each pair of headers 114. There are no support tubes extending between pairs of headers or air diffuser tubes, as is claimed. Cote et al. does not cure the deficiencies of Miyashita et al. Cote et al. discloses a swingable frame surrounding a group of membranes but is in no way attached to them. There are no headers having support tubes extending between them and air diffusion tubes. By disclosing an aeration system to clean membranes that is separate from the membranes and headers, Cote et al. discloses a system that is completely different than the system disclosed by Miyashita et al.

No prior art, taken alone or in combination discloses a hollow fiber membrane module having an air diffusion unit between the two module headers, the air diffusion unit comprising support tubes and air diffusion tubes having air diffusion holes, each of the air diffusion tubes is connected to the support tubes and disposed in the bundle of hollow fiber membranes and the support tubes and air diffusion tubes in fluid communication with one another.

Applicants respectfully submit that the combination of elements as set forth in independent claim 1 is not disclosed or made obvious by the prior art of record, including Miyashita et al., Cote et al., Mahendran, Hayano et al. and Brun et al., for the reasons explained above. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

With regard to dependent claims 2-11, Applicants submit that these claims depend, either directly or indirectly, from independent claim 1 which is allowable for the reasons set forth above, and therefore claim 2-11 are allowable. In addition, these claims recite further limitations which are not disclosed or made obvious by the applied prior art references. Reconsideration and allowance thereof are respectfully requested.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

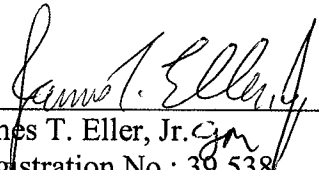
If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Chris McDonald, Registration No. 41,533, at (703) 205-8000, in the Washington, D.C. area.

Prompt and favorable consideration of this Amendment is respectfully requested.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By 
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